

UNITED STATES NAVAL OBSERVATORY
CIRCULAR NO. 80

U. S. Naval Observatory, Washington 25, D. C.

August 26, 1957

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS
FEBRUARY, 1957

By Winifred Sawtell Cameron

These results are based upon measurements made at the Naval Observatory on plates secured either there or at the Mt. Wilson Observatory. The symbols used for the entries in the successive columns are as follows:

U.T., the epoch of observation in Universal Time.

No., the identifying number of the group assigned by Mt. Wilson.

Δl , the heliographic difference in longitude from the central meridian, measured positive to the west.

φ , the heliographic latitude, measured positive to the north.

ρ , the heliocentric angular distance from the line joining the centers of the Earth and Sun.

A , the true area of the umbra plus penumbra, expressed in millionths of the visible hemisphere.

s , the number of spots.

An asterisk means that no Mt. Wilson number was assigned. Plates secured at the Naval Observatory are indicated by N, and those at Mt. Wilson by M. The plate quality, which follows, is indicated by:

1, Poor; 2, Fair; 3, Good; 4, Very Good; 5, Excellent.

The following five quantities are listed successively at the end of each day, and give for that day:

1. The total number of groups, g .
2. The longitude of the central meridian, L_0 .
3. The latitude of the center of the disc, B_0 .
4. The total value of A .
5. The total value of s .

The mean daily area and the mean relative sunspot number, $r=10g+s$ are given at the end of the month.

These results are a continuation of those published in the *Monthly Weather Review* from February 1, 1927 to December 31, 1947.

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U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s	
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$			
1.677	12120	-52	+19	58	48	5	4.576	12124	-80	-25	79	436	1	
M-2	12120	-49	+18	56	12	2	N-2	12123	-52	-15	52	36	1	
	12120	-47	+16	54	170	2		12122	-46	-24	48	12	1	
	12119	-44	-20	45	242	2		12122	-45	-23	46	73	2	
	12117	-38	-24	42	16	3		12122	-43	-22	45	36	1	
	12118	-36	-17	37	12	2		12122	-41	-22	43	73	1	
	12115	+ 8	-18	15	6	1		12121	-41	-18	42	16	1	
	12115	+12	-18	17	6	1		12120	-14	+17	27	16	1	
	12114	+11	+16	25	24	3		12120	-14	+19	29	12	1	
	12114	+13	+15	25	6	1		12120	-13	+17	27	24	1	
	12114	+13	+17	26	6	1		12120	-11	+17	26	16	1	
	12114	+15	+15	26	12	1		12120	- 9	+16	25	121	1	
	12114	+17	+16	29	6	1		12119	- 6	-21	16	36	1	
	12114	+17	+14	27	16	2		12119	- 5	-19	15	388	1	
	12114	+20	+16	30	12	3		12114	+62	+16	67	73	1	
	12114	+22	+16	32	12	3		12106	+81	-20	80	145	1	
	12114	+23	+14	30	73	1			(8)	(200)	(-6)	1513	17	
	12113	+13	+24	33	6	1								
	12106	+44	-21	45	97	1		5.670	12124	-75	-26	75	485	4
	12103	+65	+34	75	97	1		M-4	12124	-64	-24	65	6	1
	12102	+74	+18	79	48	1			12124	-61	-26	63	436	7
	(10)	(238)	(-6)		927	38			12123	-39	-13	40	6	1
2.626	12121	-69	-18	69	16	1			12123	-35	-14	36	16	2
N-2	12120	-40	+18	48	32	1			12126	-33	+15	39	6	1
	12120	-36	+18	44	16	1			12126	-32	+16	39	6	1
	12120	-34	+16	41	194	1			12122	-29	-23	34	48	8
	12119	-32	-23	35	24	1			12122	-27	-24	32	12	1
	12119	-30	-19	32	339	1			12122	-27	-22	31	12	3
	12117	-25	-24	30	36	1			12122	-25	-22	28	12	3
	12118	-23	-18	25	16	1			12122	-24	-22	28	61	1
	12114	+31	+14	37	24	1			12121	-25	-17	27	6	1
	12114	+35	+15	41	121	1			12121	-25	-18	27	6	1
	12106	+56	-19	57	170	1			12121	-25	-19	28	6	1
	12103	+78	+34	88	97	1			12120	0	+18	25	6	1
	(8)	(225)	(-6)		1085	12			12120	+ 2	+18	25	6	2
3.749	12123	-65	-14	65	48	1			12120	+ 3	+16	23	121	10
M-1	12121	-55	-17	56	48	2			12120	+ 5	+16	23	36	1
	12121	-53	-18	54	48	1			12120	+ 5	+15	22	12	3
	12122	-53	-23	54	24	2			12119	+ 7	-23	18	12	2
	12120	-25	+19	36	48	1			12119	+ 8	-20	16	291	2
	12120	-24	+19	35	24	1			12119	+ 8	-23	19	16	5
	12120	-19	+16	30	121	2			12119	+ 9	-26	22	6	1
	12119	-15	-20	20	267	1			12119	+12	-26	24	6	1
	12117	-14	-23	21	16	1			12117	+13	-24	22	6	3
	12117	-11	-24	21	16	1			12117	+13	-23	21	6	1
	12117	- 9	-25	21	32	1			12118	+17	-21	23	6	1
	12118	- 5	-16	12	16	1			12118	+18	-18	22	6	1
	12114	+51	+15	56	121	1			12114	+80	+14	82	145	1
	12106	+70	-21	70	121	1			(10)	(185)	(-6)	1805	71	
	(9)	(211)	(-6)		950	17								
								6.771	12127	-77	-22	77	24	1
								M-3	12124	-62	-26	64	242	7
									12124	-60	-25	62	121	5

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U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s	
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$			
	12124	-56	-26	59	12	2		12121	-2	-17	12	24	3	
	12124	-54	-25	56	12	3		12121	+1	-16	11	6	1	
	12124	-54	-26	57	12	1		12121	+3	-16	11	12	1	
	12124	-50	-24	52	6	1		12120	+28	+16	36	12	1	
	12124	-46	-25	49	364	9		12120	+30	+16	38	6	1	
	12123	-28	-10	28	6	1		12120	+31	+15	37	24	2	
	12123	-27	-12	27	12	2		12120	+32	+16	39	24	1	
	12123	-26	-13	26	6	1		12119	+33	-21	35	32	1	
	12121	-19	-14	22	6	2		12119	+34	-24	37	16	2	
	12121	-16	-16	19	6	1		12119	+34	-22	36	73	3	
	12121	-15	-17	17	12	2		12119	+35	-21	36	242	1	
	12121	-14	-16	16	12	1		12119	+35	-23	37	73	2	
	12126	-17	+16	29	6	1								
	12122	-16	-23	24	32	2		(8)	(159)	(-6)		1942	64	
	12122	-15	-23	22	36	5		9.726	12132	-73	-22	71	24	2
	12122	-15	-24	23	24	1		M-4	12132	-72	-21	70	12	1
	12122	-14	-22	21	12	2			12132	-70	-20	68	48	5
	12122	-13	-24	22	12	1			12132	-68	-22	67	24	3
	12122	-12	-23	20	73	10			12129	-56	+21	62	24	7
	12122	-9	-21	16	48	1			12129	-54	+17	59	16	4
	12120	+16	+17	29	12	3			12129	-50	+16	55	61	2
	12120	+18	+16	29	73	4			12129	-49	+17	55	12	2
	12120	+19	+16	30	6	1			12131	-49	+11	52	6	1
	12120	+19	+17	31	48	1			12127	-42	-22	44	16	6
	12119	+19	-20	24	6	2			12127	-38	-23	41	6	1
	12119	+21	-21	25	6	2			12127	-37	-20	38	6	1
	12119	+23	-20	26	291	4			12127	-36	-20	37	48	4
	12119	+24	-22	28	121	13			12124	-26	-25	31	194	7
	12117	+27	-24	32	12	3			12124	-26	-27	33	32	4
	12117	+29	-24	34	6	1			12124	-25	-26	31	73	5
		(9)	(171)	(-6)		1677	96		12124	-24	-25	29	12	2
7.674	12129	-85	+14	87	145	1			12124	-23	-25	28	36	7
M-2	12127	-64	-22	65	32	1			12124	-23	-26	29	16	5
	12124	-50	-26	53	267	2			12124	-22	-26	29	12	2
	12124	-49	-28	53	73	2			12124	-20	-25	26	6	2
	12124	-47	-26	50	73	4			12124	-15	-24	24	16	8
	12124	-45	-26	48	12	1			12124	-14	-24	23	12	3
	12124	-43	-26	46	12	3			12124	-12	-26	23	24	5
	12124	-41	-26	45	16	2			12124	-8	-26	21	339	4
	12124	-41	-27	45	6	1			12124	-4	-23	16	6	1
	12124	-40	-24	43	12	1			12124	-4	-26	20	12	2
	12124	-38	-24	42	16	4			12124	-1	-25	19	6	1
	12124	-34	-26	38	436	4			12123	+8	-14	12	16	2
	12123	-16	-12	17	6	1			12123	+9	-13	12	6	1
	12123	-14	-12	15	12	1			12123	+12	-14	15	6	4
	12123	-13	-13	14	12	1			12123	+15	-15	16	12	2
	12122	-5	-24	18	48	2			12122	+18	-26	26	6	2
	12122	-4	-24	18	61	3			12122	+18	-25	26	6	1
	12122	-3	-24	18	6	1			12122	+20	-26	27	12	1
	12122	-2	-23	17	32	4			12122	+27	-23	32	36	6
	12122	0	-23	16	12	1			12121	+23	-19	26	6	1
	12122	+2	-21	15	97	4			12121	+24	-18	26	12	4
	12121	-5	-17	13	12	1			12130	+24	+24	39	12	3
									12130	+27	+24	42	12	4

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U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$			
	12130	+30	+23	42	16	2		12124	+15	-26	25	97	2
	12120	+57	+13	61	6	1		12124	+27	-25	25	12	1
	12120	+60	+13	64	24	4		12124	+31	-26	35	485	1
	12119	+59	-25	61	16	3		12122	+59	-19	59	97	1
	12119	+61	-26	63	73	4		12122	+59	-18	59	48	1
	12119	+62	-25	64	194	1		12121	+63	-14	63	388	2
	12119	+63	-26	65	48	1		12121	+65	-13	65	145	3
								12121	+66	-13	65	32	1
	(11)	(132)	(-7)		1618	144		(11)	(95)	(-7)		2254	33
10.600	12132	-57	-26	58	61	1							
N-2	12132	-56	-25	57	61	2	13.628	12137	-61	+15	65	109	1
	12132	-56	-26	57	48	1	N-3	12137	-59	+16	63	24	2
	12129	-45	+16	50	16	1		12138	-59	+8	62	121	1
	12129	-39	+13	44	85	1		12136	-54	-25	55	12	1
	12129	-38	+15	44	24	1		12132	-14	-26	24	24	2
	12127	-23	-22	26	61	1		12129	-5	+15	23	48	5
	12124	-14	-27	25	267	3		12135	+8	-22	17	24	1
	12124	-13	-29	26	73	1		12135	+9	-24	19	24	2
	12124	-11	-28	24	109	3		12135	+12	-22	19	12	1
	12124	-11	-26	22	24	1		12135	+14	-22	20	73	2
	12124	-10	-27	23	97	3		12127	+19	-21	24	48	1
	12124	-9	-28	24	61	1		12134	+25	+20	36	6	1
	12124	-7	-26	21	16	2		12124	+26	-26	31	145	3
	12124	+3	-26	19	24	1		12124	+27	-25	32	6	1
	12124	+5	-26	20	436	2		12124	+28	-26	34	24	3
	12134	-14	+18	29	6	1		12124	+46	-25	48	436	1
	12134	-12	+19	29	16	1		12121	+78	-14	78	388	3
	12123	+22	-13	23	32	1		12121	+82	-13	82	97	1
	12123	+30	-13	31	16	1							
	12122	+36	-18	36	24	2		(10)	(81)	(-7)		1621	32
	12122	+43	-19	44	48	1							
	12121	+39	-15	39	24	1	14.563	12145	-85	-28	83	388	1
	12130	+41	+26	51	24	1	N-2	12144	-66	-25	65	73	1
	12119	+75	-20	74	48	1		12144	-65	-23	65	24	1
	12119	+76	-19	75	388	1		12144	-61	-24	62	61	2
								12140	-62	+11	64	24	1
	(10)	(120)	(-7)		2089	36		12140	-60	+13	63	97	1
12.547	12137	-79	+14	80	242	1		12143	-60	+6	62	16	1
N-2	12138	-76	+8	77	170	1		12143	-57	+6	60	48	1
	12136	-68	-25	67	16	1		12137	-48	+14	53	121	1
	12132	-31	-25	35	6	1		12137	-47	+16	53	12	1
	12132	-30	-26	35	12	1		12137	-46	+15	51	24	1
	12132	-28	-26	33	61	1		12138	-46	+7	48	73	1
	12129	-15	+13	25	12	2		12142	-16	+14	26	48	1
	12129	-13	+13	24	32	3		12132	-3	-25	18	48	2
	12135	-5	-23	17	12	1		12132	-2	-26	20	48	1
	12135	-3	-23	16	16	1		12132	+3	-27	21	24	1
	12127	+2	-23	16	16	1		12129	+7	+16	25	48	1
	12127	+4	-21	15	73	2		12129	+10	+14	24	24	1
	12134	+10	+19	28	16	1		12135	+21	-23	25	48	1
	12124	+12	-27	24	194	2		12135	+24	-21	27	48	1
	12124	+13	-25	22	48	1		12135	+25	-20	27	36	1
	12124	+14	-27	25	24	1		12135	+26	-22	29	73	1
								12127	+32	-21	34	48	1

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U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$		
	12124	+38	-26	41	97	1		12124	+84	-26	83	485	1
	12124	+40	-27	44	32	1							
	12124	+58	-25	60	679	1		(12)	(40)	(-7)		2110	25
	(12)	(68)	(-7)		2262	28	17.683	12145	-43	-27	46	218	2
15.651	12145	-68	-27	66	315	1	M-2	12144	-27	-23	31	16	3
N-2	12144	-51	-24	53	133	2		12144	-27	-24	32	12	1
	12144	-49	-23	50	24	1		12144	-26	-23	30	36	6
	12144	-47	-21	48	97	2		12144	-25	-22	28	32	8
	12144	-45	-22	46	170	2		12144	-25	-24	29	85	3
	12140	-45	+14	49	48	1		12144	-24	-23	28	32	4
	12143	-42	+8	45	24	2		12144	-23	-24	28	6	1
	12137	-34	+16	41	170	1		12144	-23	-22	27	16	3
	12137	-33	+17	41	12	1		12144	-21	-23	26	97	4
	12137	-31	+16	37	16	1		12144	-20	-21	24	16	2
	12138	-32	+8	35	73	1		12144	-19	-23	25	24	2
	12142	-1	+15	23	36	1		12144	-19	-21	24	24	1
	12142	+3	+14	22	24	1		12144	-17	-23	24	97	5
	12132	+9	-23	18	6	1		12144	-16	-22	22	73	5
	12132	+13	-25	22	24	1		11137	-6	+16	24	97	1
	12132	+14	-23	21	6	1		12138	-4	+8	16	32	1
	12129	+24	+15	33	16	1		12138	-3	+11	17	12	1
	12135	+34	-22	36	32	1		12138	-2	+9	16	12	2
	12135	+37	-20	38	36	1		12136	+3	-18	12	6	1
	12135	+43	-20	44	73	2		12136	+4	-19	14	6	2
	12141	+35	-8	35	24	1		12132	+36	-26	40	12	1
	12127	+45	-20	46	24	1		12141	+61	-12	61	24	1
	12124	+51	-26	53	121	3		12141	+62	-8	62	24	3
	12124	+55	-24	55	61	1		12141	+63	-8	63	24	2
	12124	+71	-25	69	533	1		12141	+65	-8	64	24	1
	(13)	(54)	(-7)		2098	32		12141	+65	-12	64	16	3
16.710	12145	-55	-26	56	291	1		12135	+64	-23	64	16	1
N-2	12144	-37	-23	40	170	1		12135	+70	-22	68	16	2
	12144	-37	-21	39	36	1		(8)	(27)	(-7)		1105	72
	12144	-36	-19	37	24	1	18.551	12149	-76	-17	75	48	1
	12144	-34	-20	35	48	3	N-2	12149	-74	-16	73	170	1
	12144	-31	-21	33	218	1		12145	-30	-28	35	242	2
	12143	-34	+10	38	48	1		12144	-16	-25	24	16	1
	12140	-28	+14	35	73	2		12144	-15	-26	25	24	1
	12137	-18	+16	30	109	1		12144	-13	-23	20	145	7
	12138	-16	+10	24	61	1		12144	-13	-22	19	48	4
	12142	+14	+16	27	48	1		12144	-13	-24	22	61	1
	12142	+19	+14	29	24	1		12144	-12	-24	21	16	1
	12132	+25	-26	31	32	1		12144	-11	-23	19	24	3
	12129	+38	+14	44	73	1		12144	-11	-21	17	16	1
	12129	+40	+14	45	36	1		12144	-9	-23	18	32	1
	12141	+46	-9	46	32	1		12144	-7	-24	19	73	1
	12141	+51	-8	51	24	1		12144	-5	-23	17	291	8
	12135	+47	-23	48	48	1		12137	+4	+16	24	97	1
	12135	+51	-22	52	48	1		12138	+7	+9	18	48	1
	12135	+56	-22	56	61	1		12146	+39	-9	39	12	1
	12124	+64	-27	65	121	1		12141	+75	-9	75	97	1

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U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s
	12141	+79	-7	79	388	3		12145	+9	-28	24	218	1
	(7)	(16)	(-7)		1848	40		12144	+24	-24	29	73	2
19,661	12149	-58	-15	58	12	3		12144	+25	-23	29	97	4
M-4	12149	-56	-14	56	48	2		12144	+27	-20	30	97	2
	12151	-41	+16	46	6	1		12144	+27	-22	31	32	2
	12151	-38	+15	44	6	2		12144	+30	-20	33	12	2
	12145	-16	-27	26	194	2		12144	+33	-21	35	24	1
	12144	-2	-26	20	12	2		12144	+35	-20	36	16	3
	12144	-1	-25	19	16	4		12144	+35	-22	37	36	1
	12144	-1	-24	18	6	1		12144	+37	-21	38	242	2
	12144	-1	-22	15	16	7		12144	+37	-23	39	48	1
	12144	0	-22	15	16	6		12150	+30	+9	35	145	5
	12144	+1	-21	14	73	7		12150	+36	+10	40	145	3
	12144	+1	-23	16	32	4		12137	+44	+17	50	73	1
	12144	+1	-24	17	16	2		12138	+49	+12	53	36	1
	12144	+5	-21	15	16	4		(7)	(336)	(-7)		1540	35
	12144	+5	-22	16	12	1	22,591	12153	-61	+18	65	61	2
	12144	+5	-23	17	12	1	N-3	12153	-56	+17	60	73	1
	12144	+6	-23	17	48	3		12155	-40	-15	41	6	1
	12144	+8	-22	18	267	4		12154	-39	+15	46	16	1
	12150	+4	+6	14	6	1		12154	-36	+14	42	48	3
	12150	+5	+8	16	6	3		12152	-38	+18	46	16	1
	12140	+8	+14	23	6	2		12152	-36	+19	44	12	1
	12137	+18	+16	30	73	1		12151	-1	+17	25	16	1
	12138	+22	+10	27	24	4		12151	+2	+17	25	12	1
	12146	+54	-10	54	24	1		12145	+22	-27	29	194	1
	(9)	(1)	(-7)		947	68		12144	+38	-23	41	16	1
20,555	12149	-45	-15	45	97	1		12144	+39	-22	41	16	1
N-2	12145	-4	-28	23	242	1		12144	+40	-21	42	36	1
	12144	+13	-24	22	48	2		12144	+40	-19	42	73	1
	12144	+14	-25	23	36	2		12144	+41	-22	43	32	2
	12144	+14	-23	21	61	2		12144	+44	-19	45	12	2
	12144	+15	-24	23	48	1		12144	+45	-21	45	48	1
	12144	+15	-21	20	121	3		12144	+51	-19	51	315	3
	12144	+16	-23	23	97	3		12150	+43	+11	46	315	3
	12144	+20	-22	25	24	1		12150	+45	+11	48	48	2
	12144	+21	-22	25	61	1		12150	+46	+12	50	32	2
	12144	+24	-21	27	339	3		12150	+51	+11	54	461	5
	12150	+16	+7	22	24	2		12137	+58	+18	62	48	1
	12150	+19	+7	24	32	2		12138	+63	+13	66	16	1
	12150	+22	+9	27	48	1		(10)	(323)	(-7)		1922	39
	12137	+31	+16	38	109	1	23,822	12153	-45	+18	51	24	2
	12138	+35	+11	39	24	1	N-1	12153	-38	+18	45	145	1
	12146	+66	-8	65	16	1		12154	-24	+14	32	242	2
	(7)	(349)	(-7)		1427	28		12154	-21	+14	30	73	1
21,551	12153	-78	+17	80	97	1		12154	-18	+15	29	242	2
N-2	12153	-70	+17	73	97	1		12154	-16	+15	27	121	1
	12149	-31	-14	32	36	1		12151	+14	+17	28	73	1
	12145	+8	-26	21	16	1		12151	+19	+16	30	61	1
								12156	+33	-36	41	48	1
								12156	+35	-36	43	73	1

FEBRUARY

U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$		
	12145	+34	-28	39	24	1	26.672	12163	-66	-16	65	16	1
	12145	+36	-28	41	267	1	M-5	12160	-49	-7	49	6	2
	12144	+57	-23	57	194	1		12159	-26	+31	45	6	1
	12144	+62	-23	62	73	1		12159	-26	+34	49	145	5
	12144	+67	-20	66	388	1		12159	-25	+33	46	36	4
	12150	+59	+10	62	339	1		12159	-25	+32	45	73	9
	12150	+69	+9	71	582	1		12159	-24	+34	47	12	3
	12137	+74	+16	76	73	1		12159	-23	+34	46	16	2
	(8)	(306)	(-7)		3042	21		12159	-22	+34	46	12	1
24.597	12159	-50	+30	61	73	1		12159	-21	+35	46	16	1
N-3	12159	-50	+33	62	97	3		12159	-20	+35	46	12	1
	12159	-47	+30	59	73	1		12159	-16	+34	44	267	7
	12159	-46	+32	59	61	1		12153	-1	+18	25	48	1
	12159	-45	+31	57	73	1		12162	+1	-22	15	6	1
	12153	-35	+17	43	24	1		12162	+2	-19	14	6	1
	12153	-27	+18	37	121	1		12162	+3	-21	15	6	2
	12154	-14	+14	25	182	2		12154	+12	+16	25	73	5
	12154	-13	+14	25	36	1		12154	+13	+16	26	12	4
	12154	-9	+14	24	16	1		12154	+21	+16	32	6	2
	12154	-6	+15	24	339	3		12154	+23	+15	32	16	5
	12151	+25	+18	35	61	2		12154	+24	+14	32	194	3
	12151	+31	+17	39	36	1		12157	+35	+18	43	6	2
	12156	+44	-35	49	73	2		12151	+54	+16	58	12	4
	12156	+47	-36	53	97	2		12151	+56	+15	60	12	2
	12145	+47	-27	50	242	1		12151	+58	+15	61	16	4
	12144	+63	-23	63	32	1		12151	+58	+16	62	12	1
	12144	+68	-21	67	182	2		12156	+65	-37	67	73	3
	12144	+75	-21	74	97	1		12156	+68	-36	68	48	7
	12144	+79	-18	79	436	1		12156	+73	-38	72	339	6
	12150	+70	+12	73	158	1		12161	+71	+14	73	6	1
	12150	+81	+11	82	436	1		12145	+72	-29	70	145	2
	(8)	(296)	(-7)		2945	31		(11)	(269)	(-7)		1653	93
25.671	12159	-37	+34	54	194	2	27.583	12166	-83	-12	83	73	1
M-1	12159	-36	+32	52	109	1	N-2	12166	-78	-12	78	97	2
	12159	-34	+34	52	16	1		12163	-52	-18	52	61	1
	12159	-34	+32	50	32	1		12159	-16	+32	43	97	2
	12159	-30	+33	49	339	4		12159	-15	+30	40	73	2
	12153	-14	+18	30	85	1		12159	-15	+32	42	97	3
	12154	0	+15	23	145	1		12159	-14	+32	41	145	3
	12154	0	+16	24	24	1		12159	-10	+32	40	48	3
	12154	+1	+15	23	16	1		12159	-8	+32	39	145	3
	12154	+7	+15	24	16	1		12159	-5	+32	39	388	4
	12154	+10	+15	25	315	1		12164	-10	-20	16	16	1
	12151	+38	+16	45	16	1		12153	+11	+18	27	73	1
	12151	+39	+16	46	16	1		12154	+24	+16	33	145	1
	12151	+45	+16	50	16	1		12154	+30	+16	38	61	1
	12151	+45	+15	50	12	1		12154	+34	+16	41	61	2
	12156	+54	-38	58	97	2		12154	+37	+15	44	267	2
	12156	+55	-36	59	24	2		12156	+80	-35	79	194	1
	12156	+58	-36	61	16	2		12156	+88	-36	87	388	1
	12156	+60	-37	63	291	2		12145	+85	-27	84	145	1
	12145	+60	-29	62	145	2		(8)	(257)	(-7)		2574	35
	12144	+80	-24	79	194	1							
	(7)	(282)	(-7)		2118	30							

Mean for 25 days,
 $A=1803, r=137.9$